

Performing Feature Extraction Using Transfer Learning



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Overview

Specific transfer learning use cases

Small datasets

High and low similarity datasets

Freezing some model layers

Transfer learning with the vgg16 and Resnet18 model architectures

Transfer Learning Scenarios

How similar are the old
and new datasets?

How much new training
data is available?

<ul style="list-style-type: none">• Re-use architecture• Re-calculate model weights• Re-train from scratch	<ul style="list-style-type: none">• Re-use architecture• Fine-tune model weights• Fine-tune all layers	Lots
<ul style="list-style-type: none">• Re-use architecture• Fine-tune model weights• Fit classifier on initial layers	<ul style="list-style-type: none">• Re-use architecture• Fine-tune model weights• Fine-tune only final layers	Little
Different	Similar	

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Fixed Feature Extractor

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Fine-tune Top Layers

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Demo

**Upload image classification datasets
to the deep learning VM instance**

Demo

**Use a pre-trained model as a fixed
feature extractor**

Demo

Fine-tune top layers of the model

Summary

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